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# List of wind power projects in Vietnam, 2021-01

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## Abstract

This dataset is an historical list of wind power projects in Vietnam, updated 2021-01-21. The list contains 473 records, among which 381 refer to active projects. It includes the generation capacity, the project's location at the commune level, its stage classified on the Preliminary / Development / Implementation / Operation / Decommission scale, and whether it is onshore, nearshore or offshore. The sample is comprehensive for Implementation and Operation projects. We cover the total project investment cost for 162 records. We obtained the dataset by reviewing only public sources: national power development plan updates, provincial investment plans decisions ; the press and the professional literature. This dataset can be used for energy system research and modeling, for policy analysis at the provincial and national levels, and to better understand the market conditions. It provides an inspirational example of how fast it is possible to switch to renewable energy on a national scale. Climate change mitigation requires more stories like this one.

## Keywords

Wind power; Vietnam; Investment cost; Energy transition

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## Specifications Table

<b>Subject</b>	Economics, Econometrics and Finance (General) Energy Engineering and Power Technology
<b>Specific subject area</b>	Economics of Renewable Energy; Wind power
<b>Type of data</b>	Table.
<b>How data were acquired</b>	Data was acquired by desk research from open public sources.
<b>Data format</b>	Open Document Spreadsheet
<b>Parameters for data collection</b>	Past and present wind power projects with generation capacity greater than 1 MWp located in Vietnam including islands and offshore.
<b>Description of data collection</b>	Data collection is a desk-based process started in August 2019 with an exhaustive literature review, periodically updated based on releases from the national energy administration.
<b>Data source location</b>	Hanoi, Vietnam
<b>Data accessibility</b>	Repository name: Zenodo Data identification number: DOI 10.5281/zenodo.3698080 (latest version of the dataset) Direct URL to data: <a href="https://zenodo.org/record/4459116">https://zenodo.org/record/4459116</a> (version described in this manuscript)
<b>Related research article</b>	Yes. Its title is <i>Paying extra for better wind nearshore</i> .

## Value of the Data

The dataset documents the history of the Vietnam wind power sector. Its value is:

- It provides an inspirational example of how fast it is possible to switch to renewable energy on a national scale. Climate change mitigation requires more stories like this one.
- Researchers can use this dataset to study renewable energy economics and technical change.
- Policymakers everywhere can examine the structure of this dataset to design elements of their national renewable energy information system.
- Policymakers in Vietnam can use this dataset for grid development and investment planning at the provincial and national levels, for example to organize auctions.
- Business analysts have a strong interest in datasets like this one to understand the market.
- This dataset is unique because it is much more complete and up to date than those available from commercial energy data providers. It is free to use, under a permissive license. And it is more comprehensive than electricity network operators lists since it includes projects of historical interest that never materialized.

## Data Description

The dataset is formatted in one table with 495 records. Each corresponds to a wind power project at some point recognized by the local or national authorities. The following fields describe the records:

### Status

- Normal (403 records) for an active project phase, proceeding normally.
- Ghosted (41 records) when there was a named investor, but we presume abandon since we did not find evidence of recent project activity.
- Delayed (8 records) when a source affirms the project is delayed.
- Dead (4 records) when a source affirms that the project's investment certificate is cancelled.
- Divided (1 record) when an entire project is composed of several project phases, also recorded.
- Plan zone (38 records) are historical records. They have no identified investor / project holder, but have an estimated capacity in official documents.

### Project Stage

Records that are in Normal status are further qualified with a Project Stage. The project lifecycle model comprises five stages (Trần Tuấn Anh 2019; Aurélien Agut et al. 2016, chap. 2):

A – Preliminary development (216 records). An identified project holder has signed an exclusivity MoU. Activities are site selection, wind measurement, pre-Feasibility Study.

B – Development (124 records). The project has been integrated into the Power Development Plan. Then the project holder has obtained its Decision on Investment. Activities are feasibility study, technical design, land clearance.

C – Implementation (49 records). The groundbreaking event took place. Activities are detailed design, financing, construction.

D – Operation (13 records). After the Commercial Operation Date. Activities are training operators, commissioning, testing, trial runs, maintenance

E – Decommission (1 record)

## **Project name**

While the column title is Project name in the table, it records a project *phase* name. Projects are usually divided into a small number of phases. The name is in Vietnamese. The name is usually unambiguously defined from the official documents. For projects with a complicated life story, aliases and former project names are optionally mentioned between parenthesis. This field is the key record identifier and used to sort the table alphabetically.

## **Project Owner**

The name is in Vietnamese, or in English for foreign companies. Project owner company are often a special purpose vehicle owned by a parent company or companies. In a few instances, the name of the parent companies or group is included.

## **Project location fields**

Field names Ấp, Xã, Huyện means Hamlet, Commune, and District / Town. All these fields are multi-valued, as many projects extend over several communes.

Tỉnh means Province. Vùng means Region. Both fields are always non-empty and univalued, as official documents are usually organized by Province and Region.

The Location type can be Onshore (273 projects), Intertidal (87 projects), Offshore (22 projects), or empty (21 projects) when undetermined.

## **Project characteristics fields**

Capacity (MWp). This is the sum of installed turbines nameplate capacities, as built.

Connection plan. Future iterations of the dataset may include a description of the length and voltage of the connection line, but for now, this is a free-text field with less than 100 records covered.

Turbines. Future iterations of the dataset may include the number, brand and type of machines, but for now, it is a free-text field with less than 100 records covered.

Investment. It is available for 162 records, which allows econometric research. Investment is normally quoted in billion VND from the official Investment Certificate. Projects at the Preliminary stage do not have this document by definition, and sometimes only the investment in US dollars is given.

The dataset records the following project milestones dates: Exclusivity MoU, Decision on Investment, Groundbreaking event, Expected COD, Actual COD. They are available for less than 100 records. The Purchasing Power Agreement signature date, the Power Plan addition date, and financial events are not recorded in this dataset.

## **Data pedigree fields**

The housekeeping fields Date and By allow tracing who last modified the record and when. Rows that have not been touched for over six months may have the 'Project stage' out of date since this is the time scale for a project to advance into its next stage.

A Note field provides for additional comments.

The next ten fields allow tracing the informations to specific official sources, as discussed in the next section.

The next eight fields allow to trace other sources used.

## Experimental Design, Materials, and Methods

The dataset was assembled by desk research. We used only public sources, no confidential insider information. The Bibliography section lists a sample of our sources. The complete list of sources is within the dataset. Each record includes one or several links to the information source(s). We organize our sources into three categories: Technical reports, News and Official documents.

- The initial collection phase relied on technical reports such as (Tuong Do 2019b; GIZ 2016). These provide historical information on the early projects. Few of those were built. Wikipedia is not a source but an outlet : our research team contributes to updating pages.
- We updated and extended the initial dataset by scraping the News archives of the Vietnam Clean Energy Association and the Vietnam Energy Association. We also used the archives from the Ministry of Industry and Trade's, from Provincial People's Committees and from other local organizations. News outlets like these are quasi-official information sources, they disseminate publicly and sometimes contextualize the press releases from the developers and from the authorities. They particularly inform about groundbreaking events, provincial plans and Investment Certificates.
- National and sometimes provincial authorities publish official Directives and Letters. The national documents list authorized projects, those included in the national Power Development Plan, e.g. (Trịnh Đình Dũng 2020b; Hoàng Quốc Vương 2020; Đặng Hoàng An 2020). The provincial documents tend to list projects earlier in the development cycle, before they are included in the Plan, e.g. (Võ Ngọc Thành 2020; Hoàng Quốc Vương 2012).

This dataset includes projects listed in MOIT 2020 letters 1931, 3299, 7201, 7408 and 10052. This ensures that it is exhaustive regarding projects at the B - Development, C - Implementation and D - Operation stages.

At the end of 2020 the national energy authorities froze the instruction of new wind energy projects for the short term. At the same time, the national energy authorities asked provinces for lists of wind power projects to be considered in the long-term planning. Only the list from Binh Dinh province Letter 6826/UBND-KT is included in the dataset. While the dataset lists 216 projects at the A - Preliminary stage, we have no reason to believe it is exhaustive. This is a snapshot of a hot economic sector.

## Acknowledgements

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## Competing Interests

HDM research visit at VIET SE received financial support from the European Climate Foundation. The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article. The authors have no financial relation with the Wind Energy business.

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